WHAT IS CLAIMED IS:

1. A self-cleaning filtration system for filtering a fluid flow comprising:

a cage;

at least one filter disposed within the cage; and

at least one pipe configured to receive water through the at least one filter;

wherein the cage comprises:

a non-permeable leading member configured to divert the fluid flow, wherein the at least one filter is configured to be placed downstream of the leading member;

a trailing member;

a bottom member configured to secure the cage;

at least one side member coupled to the leading and trailing members and coupled to the bottom member;

wherein at least one of the side members is angled inwardly with respect to a centroid defined by the cage from the leading member to the trailing member.

2. The self-cleaning filtration system of Claim 1, wherein the trailing member comprises a mesh.

3. The self-cleaning filtration system of Claim 2, wherein the filters comprise filters having a smaller mesh size than the mesh of the trailing member.

4. The self-cleaning filtration system of Claim 1, wherein the at least one side member comprises a mesh.

5. The self-cleaning filtration system of Claim 4, wherein the filters comprise filters having a smaller mesh size than the mesh of the at least one side member.

6. The self-cleaning filtration system of Claim 1, wherein the trailing member comprises at least one opening configured to receive one of the pipes.

7. The self-cleaning filtration system of Claim 1, wherein the trailing member comprises at least one opening configured to receive at least one backflush supply line.

8. The self-cleaning filtration system of Claim 7, wherein at least one vibration device is coupled to the system through at least one backflush supply line.

9. The self-cleaning filtration system of Claim 1, wherein the trailing member comprises at least one opening configured to receive at least one electrical wire.

10. The self-cleaning filtration system of Claim 1, wherein the at least one filter comprises a self cleaning filter.

11. The self-cleaning filtration system of Claim 1, wherein the bottom member comprises a non-permeable material.

12. The self-cleaning filtration system of Claim 1, wherein the cage substantially defines a cone having a decreasing diameter in the direction from the leading member to the trailing member.

13. The self-cleaning filtration system of Claim 1, wherein the bottom member comprises a non-permeable surface.

14. The self-cleaning filtration system of Claim 1, wherein at least one vibration device is coupled to the cage.

15. The self-cleaning filtration system of Claim 1, wherein at least one vibration device is coupled to at least one of the pipes.

16. The self-cleaning filtration system of Claim 1, further comprising a top member and wherein at least a portion of the at least one of the side member is angled inwardly with respect to a centroid defined by the cage from the top member to the bottom member.

17. The self-cleaning filtration system of Claim 1, wherein the cage further comprises a back flushing mechanism.

18. The self-cleaning filtration system of Claim 17, wherein the back flushing mechanism is configured to direct at least one spray of material into the at least one side member.

19. The self-cleaning filtration system of Claim 18, wherein the material comprises a liquid.

20. The self-cleaning filtration system of Claim 18, wherein the material comprises a gas.

21. The self-cleaning filtration system of Claim 20, wherein the gas comprises air.

22. The self-cleaning filtration system of Claim 20, wherein the gas comprises oxygen.

23. A method of pumping fluid from a flow of fluid, the method comprising:

diverting the flow of fluid around a front member;

filtering a first portion of the flow of fluid through an outer mesh wherein the outer mesh is configured with respect to the flow of fluid and the front member so that the fluid flow carries debris away from the outer mesh;

filtering the first portion of fluid through a second filter mesh that performs finer filtering than the outer mesh; and

directing the fluid received through the second filter mesh away from the second mesh.

24. The method of Claim 23, further comprising back flushing the second filter mesh.

25. The method of Claim 23, further comprising back flushing the outer mesh.

26. A filter system comprising:

means for diverting a flow of fluid;

first means for filtering a first portion of the flow of fluid wherein the first means for filtering is configured with respect to the flow of fluid and the means for diverting so that the flow of fluid carries debris away from the first means for filtering;

second means for filtering the first portion of fluid wherein the second means for filtering performs finer filtering that the first means for filtering and

means for directing the fluid received through the second filter mesh.

27. The system of Claim 26, further comprising means for back flushing the first means for filtering.

28. The system of Claim 26, further comprising means for back flushing the second means for filtering.

29. A sediment removal system comprising:

a sediment discharge pipe having a vacuum inlet;

a high pressure pipe;

a venturi pump coupling the high pressure pipe to the sediment discharge pipe;

a plurality of venturi jets fluidly coupling the high pressure pipe to the sediment discharge pipe;

a vessel fluidly coupled to the sediment discharge pipe and configured to retain sediment from fluid received from the sediment discharge pipe; and

a pressure booster pump connected to the high pressure pipe and configured to pressurize fluid in the high pressure pipe.

30. The sediment removal system of Claim 29, wherein the sediment discharge pipe is configured to receive the fluid from a body of fluid and the system further comprising a pipe configured to return the fluid received by the vessel from the sediment discharge pipe to the body of fluid.

31. The sediment removal system of Claim 29, wherein the sediment discharge pipe is configured to receive the fluid from a body of fluid and the system and the system further comprising a pipe configured to carry the fluid received by the vessel from the sediment discharge pipe away from the body of fluid.

32. The sediment removal system of Claim 29, further comprising:

a valve connected to the high pressure pipe and configured to open when the pressure booster pump is activated.

33. The sediment removal system of Claim 29, further comprising:

a filtered fluid pipe having an inlet positioned separated from a deposit of sediment by the vacuum inlet; and

a filter assembly covering the inlet of the filtered fluid pipe.

34. The sediment removal system of Claim 33, wherein the inlet is positioned above the vacuum inlet.

35. The sediment removal system of Claim 33, further comprising a back flushing mechanism coupled to the filter assembly and configured to backflush the filter assembly when a flow of fluid through the filtered fluid pipe reverses direction.

36. The sediment removal system of Claim 33, wherein the filter assembly comprises a self-cleaning filter assembly.

37. The sediment removal system of Claim 33, wherein the high pressure pump is configured to receive fluid from the filtered fluid pipe.

38. The sediment removal system of Claim 33, wherein a vibration device is coupled to the filtered fluid pipe.

39. A filtration system comprising:

at least one pressure tube;

an impermeable member defining a first chamber within the at least one pressure tube, the first chamber having an inlet and an outlet;

at least one first filter surrounding the inlet so as to form a second chamber around the inlet;

a filtered fluid pipe disposed within the pressure tube and fluidly connected to the second chamber;

a vent tube extending into the pressure tube and having a first opening to air outside of the pressure tube and a second opening into the second chamber and configured to expose the second chamber to the atmosphere; and

a pressure tight seal covering the outlet of the first chamber, wherein the vent tube passes into the second chamber through the pressure tight seal.

40. The system of Claim 39, wherein a portion of the vent tube comprises a back flow limiter.

41. The filtration system of Claim 40, wherein the back flow limiter comprises:

a separator chamber; and

a gas filled stop configured to float within the separator chamber wherein a portion of the chamber is configured to receive the stop to form a gas tight seal.

42. The filtration system of Claim 40, wherein the back flow limiter comprises a submerged fluid level switch configured to control operation of the pump.

43. The system of Claim 39, wherein the first filter comprises a cross flow membrane.

44. The system of Claim 39, further comprising a pump disposed within the first chamber.

45. The system of Claim 44, wherein at least one sealed electrical supply line passes through the pressure tight seal connection to the motor.

46. The system of Claim 44, wherein at least one electrical supply line passes through the at least one pressure tube.

47. The system of Claim 44, wherein the impermeable member is configured to direct fluid flow adjacent to the motor for cooling.

48. The system of Claim 39, further comprising a first self cleaning filter enclosing the inlet within the first chamber.

49. The system of claim 39, wherein the vent tube is configured to create a pressure differential across the first filter.

50. The system of Claim 39, further comprising a second pump disposed within the second chamber.

51. The system of Claim 39, further comprising a shroud partially enclosing the inlet to the first chamber.

52. The system of Claim 51, further comprising a second pump and second motor disposed within the shroud.

53. The system of Claim 52, wherein the at least one pressure tube is configured to direct fluid flow adjacent to the second motor for cooling.

54. The system of Claim 39, wherein the at least one pressure tube comprises at least one outlet opening.

55. A fluid filtration system comprising;

an impermeable pressure tube;

a fluid pipe disposed within the pressure tube;

at least one fluid inlet pipe disposed within the pressure tube;

at least one filter defining a fluid chamber around the at least one inlet pipe; and

a pressure tight seal on each end of the pressure tube.

56. The filtration system of Claim 55, wherein the filter comprises a cross flow filtration membrane.

57. The filtration system of Claim 55, wherein the pressure tube comprises at least one discharge opening to the fluid body.

58. The filtration system of Claim 55, wherein the pressure tube is configured to direct a flow of fluid generally parallel to a surface of the filter inside the pressure tube and then out the discharge opening.

59. The filtration system of Claim 55, further comprising at least one pump coupled to the fluid inlet pipes.

60. The filtration system of Claim 59, wherein the at least one pump is configured to direct a portion of the flow of fluid through the filter.

61. A filtration system comprising;

a first pump;

an outer tube configured to be at least partially submerged and fluidly coupled to the first pump;

a second pump;

an inner tube, disposed within the outer tube and fluidly connected to the second pump; and

a filter connected to the inner tube and defining a chamber that encloses an inlet to the inner tube.

62. The filtration system of Claim 61, further comprising a vent tube extending into the chamber and having a first opening to air outside of the membrane chamber.

63. The filtration system of Claim 62, wherein the vent tube is configured to create a pressure differential across the filter.

64. The filtration system of Claim 62, wherein a portion of the vent tube comprises a back flow limiter.

65. The system of Claim 64, wherein the back flow limiter comprises;

a separator chamber; and

a gas filled stop configured to float within the separator chamber wherein a portion of the chamber is configured to receive the stop to form a gas tight seal.

66. The filtration system of Claim 64, wherein the back flow limiter comprises a switch configured to shut off the pump when the switch is exposed to a gas.

67. The filtration system of Claim 61, wherein the filter comprises a cross flow membrane.

68. The filtration system of Claim 61, wherein the first pump and the second pump are configured to direct fluid flow in each of the inner and outer tubes in the same direction.

69. The filtration system of Claim 61, wherein the first pump and the second pump are configured to direct fluid flow in each of the inner and outer tubes in opposite directions.

70. A method of filtering fluid from a body of fluid comprising:

directing a first flow of fluid generally parallel to a surface of a filter, wherein the second flow is along a surface of the filter;

pumping a second flow of fluid through the filter, wherein the second flow comprises a portion of the first flow;

receiving the filtered second flow; and

discharging a portion of the first flow through an outlet and into the body of fluid.

71. The method of Claim 70, wherein the filter comprises a cross flow membrane.

72. The method of Claim 70, wherein the act of directing the first flow of fluid comprises receiving the first flow of fluid from in the body of fluid through an inlet that is positioned at a distance from the outlet with the distance selected to prevent an increased concentration of impurities from the first flow from entering the inlet.

73. The method of Claim 70, further comprising:

exposing the first flow to atmospheric pressure.

74. A system for filtering a fluid from a body of fluid comprising:

means for directing a second flow of fluid generally parallel to a surface of a filter, wherein the second flow is along a surface of the filter and away from the filter and wherein the first flow comprises a portion of the second flow;

means for pumping a second flow of fluid through the filter; means for receiving the filtered second flow; and

means for discharging the first flow from the means for directing.

75. The system of Claim 74, wherein the filter comprises a cross flow membrane.

76. The system of Claim 74, wherein the means for receiving the first flow is positioned at a distance from the means for discharging selected to prevent an increased concentration of impurities from the first flow from entering the means for directing.

77. The system of Claim 74, further comprising means for exposing the second flow to atmospheric pressure.

78. A filter apparatus comprising:

a filter element;

a pipe coupled to the filter element and configured to receive a flow of a fluid;

a flange disposed within the pipe and projecting from an inner member of the pipe into the flow of the fluid; and

a body rotatably mounted to the flange wherein the body is configured to rotate in response to the flow of the fluid and wherein the body is configured to translate at least a portion of the rotation into a vibratory motion of the pipe.

79. The filter apparatus of Claim 78, wherein the pipe is configured to carry filtered fluid.

80. The filter apparatus of Claim 78, wherein the body is configured to vibrate the pipe when the pipe carries filtered fluid.

81. The filter apparatus of Claim 78, wherein the pipe is configured to carry a back flushing medium.

82. The filter apparatus of Claim 78, wherein the body is configured to vibrate the pipe when the pipe carries the back flushing medium.

83. The filter apparatus of Claim 78, wherein the body comprises a wheel.

84. The filter apparatus of Claim 78, wherein the body comprises a plurality of paddles configured to receive the flow of the fluid.

85. The filter apparatus of Claim 78, wherein the body comprises a non-uniform mass distribution.

86. The filter apparatus of Claim 78, wherein the body has a center of mass and is connected to the flange at a position on the body that is spaced from the center of mass.

87. The filter apparatus of Claim 78, wherein the body defines an elliptical shape.

88. The filter apparatus of Claim 78, wherein the body comprises at least two propeller blades and wherein at least one of the blades has a greater mass than at least one other blade.

89. A method of filtering a fluid comprising:

filtering a first flow of fluid through a filter apparatus; and

applying a second flow of fluid to the filter apparatus so as to vibrate the filter apparatus.

90. The method of Claim 89, wherein the second flow of fluid comprises at least a portion of the first flow of fluid.

91. The method of Claim 89, further comprising backflushing the filtering apparatus using a third flow of fluid.

92. The method of Claim 91, wherein the third flow of fluid comprises at least a portion of the first flow of fluid.

93. A filter apparatus comprising:

means for filtering a first flow of fluid; and

means for vibrating the means for filtering in response to application of a second flow of fluid.

94. The filter apparatus of Claim 93, further comprising means for backflushing the means for filtering using a third flow of fluid.

95. The filter apparatus of Claim 93, wherein the third flow of fluid comprises at least a portion of the first flow of fluid.